

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL SEARCH REPORT (PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference GB/13853.7	<b>FOR FURTHER ACTION</b>		see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. PCT/CA2005/000065	International filing date ( <i>day/month/year</i> ) 20 January 2005 (20-01-2005)	(Earliest) Priority date ( <i>day/month/year</i> ) 20 January 2004 (20-01-2004)	
Applicant ECRANS POLAIRES INC. ET AL.			
This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.			
This international search report consists of a total of <u>3</u> sheets.  <input checked="" type="checkbox"/> It is also accompanied by a copy of each prior art document cited in this report.			
<b>1. Basis of the report</b>  a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item. <input type="checkbox"/> the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).  b. <input type="checkbox"/> With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.			
<b>2.</b> <input type="checkbox"/> Certain claims were found unsearchable (See Box II).			
<b>3.</b> <input type="checkbox"/> Unity of invention is lacking (See Box III).			
<b>4. With regard to the title.</b> <input checked="" type="checkbox"/> the text is approved as submitted by the applicant. <input type="checkbox"/> the text has been established by this Authority to read as follows :			
<b>5. With regard to the abstract.</b> <input checked="" type="checkbox"/> the text is approved as submitted by the applicant. <input type="checkbox"/> the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.			
<b>6. With regard to the drawings,</b> a. The figure of the drawings to be published with the abstract is Figure No. 5 <input checked="" type="checkbox"/> as suggested by the applicant. <input type="checkbox"/> As selected by this authority, because the applicant failed to suggest a figure. <input type="checkbox"/> As selected by this Authority, because this figure better characterizes the invention.  b. <input type="checkbox"/> None of the figures is to be published with the abstract.			

REÇU  
RECEIVED

27 MAI 2005

GODFREY SAGE DUBUC  
3400 TOUR DE LA BOURSE  
C.P. 242 PLACE VICTORIA  
MONTREAL, QUEBEC H4Z 1E9  
397-7802

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA2005/000065

## 1. CLASSIFICATION OF SUBJECT MATTER

IPC G09G-5/00; G09G-5/00; G09G-3/36; G02F-1/01; CANADIAN 375; 345/55 - 345/60

## 2. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC<sup>7</sup> G09G-5/00; G09G-3/36; G02F-1/01; CANADIAN 375; 345/55 - 345/60

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base, and, where practicable, search terms used) :

Databases : Delphion, West, Espacenet, Canadian Patent Database

Keywords : polarized displays; intensity modulating; controllable pixels; stereoscopic displays; retarders

## 3. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6529250 (MURAKAMI et al.) 4 March 2003 (04.03.2003), abstract; columns 1-2; fig. 10	1-2, 10, 14-17, 25, 27-28, 31
Y		3-5
Y	US 6452646 (SHARP et al.) 17 September 2002 (17.09.2002), abstract; description	3-4
Y	US 6034818 (SEDLMAYR) 7 March 2000 (07.03.2000), abstract; columns 53-54; figures 19-20	5

Further documents are listed in the continuation of Box C.

Patent family members are listed in annex. [ X ]

\* Special categories of cited documents :  
 "A" document defining the general state of the art which is not considered to be of particular relevance  
 "E" earlier application or patent but published on or after the international filing date  
 "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)  
 "O" document referring to an oral disclosure, use, exhibition or other means  
 "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention  
 "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone  
 "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art  
 "&" document member of the same patent family

Date of the actual completion of the international-type search  
12 April 2005 (12-04-2005)

Date of mailing of the international-type search report  
25 May 2005 (25-05-2005)

Name and mailing address of the ISA/  
Commissioner of Patents  
Canadian Patent Office - PCT  
Ottawa/Gatineau K1A 0C9  
Facsimile No. 1-819-953-9358

Authorized officer  
Terry Cartile (819) 997-2951

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International application No.  
PCT/CA2005/000065

Patent Document Cited in the Search Report	Publication Date	Patent Family Members	Publication Date(s)
X US 6529250	04.03.2003	US 6778228	17.08.2004
		US 20030025845 A1	06.02.2003
		JP 2004078196 A2	11.03.2004
		JP 2004062193 A2	26.02.2004
		JP 2004004852 A2	08.01.2004
		JP 11133414 A2	21.05.1999
		JP 03614164 B2	26.01.2005
		JP 03614163 B2	26.01.2005
		JP 03565220 B2	15.09.2004
Y US 6452646	17.09.2002	JP 03460578 B2	27.10.2003
		WO 0109668 A1	08.02.2001
		JP 2001066434 A2	16.03.2001
		EP 1101213 A2	23.05.2001
		DE 69616312 T2	18.04.2002
		CN 1152229 A	18.06.1997
		CA 2217712	10.10.1996
		BR 9603553 A	19.05.1998
		AU 5531196 A1	23.10.1996
Y US 6034818	07.03.2000	AT 0207627 E	15.11.2001
		WO 0068717 A1	16.11.2000
		US 6791752	14.09.2004
		US 6697197	24.02.2004
		US 6243198	05.06.2001
		US 5903388	11.05.1999
		AU 3893599 A1	21.11.2000

# PATENT COOPERATION TREATY

Due : <u>11, 20, 05</u>	INSCRIPTION  M. G.
<b>PCT</b> Goldreau Gage Dubuc INTERNATIONAL SEARCHING AUTHORITY	

From the INTERNATIONAL SEARCHING AUTHORITY

To:  
**GOUDREAU GAGE DUBUC**  
 Tour de Bourse, Bureau 3400  
 C.P. 242, 800 Place-Victoria  
 MONTREAL, Quebec  
 Canada, H4Z 1E9

**WRITTEN OPINION OF THE  
 INTERNATIONAL SEARCHING AUTHORITY**

(PCT Rule 43bis.1)

Date of mailing (date/month/year)	25 May 2005 (25-05-2005)
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Applicant's or agent's file reference  
**GB/13853.7**

**FOR FURTHER ACTION**  
 See paragraph 2 below

International application No PCT/CA2005/000065	International filing date (date/month/year) 20 January 2005 (20-01-2005)	Priority date (date/month/year) 20 January 2004 (20-01-2004)
International Patent Classification (IPC) or both national classification and IPC G09G-5/00; G09G-3/36; G02F-1/01		
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>Applicant ECRANS POLAIRES INC. ET AL.</div> <div style="text-align: right;"> <b>REÇU RECEIVED</b>   <b>27 MAI 2005</b>             GOUDREAU GAGE DUBUC            2400 TOUR DE LA BOURSE            C.P. 242 PLACE VICTORIA            MONTREAL, QUEBEC H4Z 1E9            397-7602         </div> </div>		

1. This opinion contains indications relating to the following items :

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input checked="" type="checkbox"/> | Box No. VII  | Certain defects in the international application   |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application  |

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/ Commissioner of Patents Canadian Patent Office Box PCT, Ottawa/Gatineau K1A 0C9  Facsimile No. (819) 953-9538	Authorized officer   Terry Cartile (819) 997-2951
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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/CA2005/000065

**Box No. I      Basis of this opinion**

1. With regard to the language, this opinion has been established on the basis of the international application in the language which it was filed, unless otherwise indicated under this item.

- ☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of :

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments :

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/CA2005/000065

**Box No. V** reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

**1. Statement**

Novelty (N)	Claims	3-9, 11-13, 15-16, 18-24, 26-30	YES
	Claims	1-2, 10, 14, 17, 25, 31	NO
Inventive step (IS)	Claims	6-9, 11-13, 18-24, 26, 29-30	YES
	Claims	1-5, 10, 14-17, 25, 27-28, 31	NO
Industrial applicability (IA)	Claims	1-31	YES
	Claims	None	NO

**2. Citations and explanations :**

The following documents have been considered for the purposes of the search report :

D1: US 6529250  
D2: US 6452646  
D3: US 6034818

D1 discloses a projection-type display apparatus, aiming at solving the problem of heat generation caused by absorption of light by a polarizing means of a liquid crystal light valve. To overcome this problem, the display apparatus includes a light source, a light valve for modulating the light from the light source, and a projection optical means for projecting the light modulated by the light valve. The light valve includes a liquid crystal panel and a polarizing means, provided on the light source side of the liquid crystal panel, with the polarizing means being formed of a multi-layered film which primarily transmits one of two types of polarization axis component light beams, and primarily reflects the other of the two types of polarization axis component light beams. As described in column 1 (line 56) to column 2 (line 21), and illustrated in figure 10, the light intensity to individual pixels of a liquid crystal matrix panel can be individually controlled using multiple linear polarizer layers, which rotate the light passing through them by 90°.

D2 discloses a retarder stack for transforming at least partially polarized light, which includes a first retarder and a second retarder. The first retarder has a first retardance and a first orientation, and the second retarder has a second retardance and a second orientation, where both orientations are with respect to the partially polarized light. Both retardances, and both orientations, can be arranged to yield the desired polarization-transformed light, which includes a first spectrum and a second spectrum. The polarization of the first spectrum and the polarization of the second spectrum can be made orthogonal to each other. The polarizations can be linear or elliptical. If the polarization-transformed light is linear, the directions of polarizations are different, and in one case can be made perpendicular. If the polarization of the polarization transformed light is elliptical, then the polarizations are different, and in one case can be made orthogonal in the general sense of orthogonality of polarization states.

D3 relates to electromagnetic wave beam paths, formation of the beam, illumination of programmable electromagnetic wave field vector orientation rotating devices with an electromagnetic beam, and the technique of projecting the modulated beam. This document also relates to a unique light path and method of forming the light into a rectangular beam, to be used for optical projection systems and, more particularly, in a color and/or black and white liquid crystal device (LCD) projectors that produce high resolution, high brightness and/or three-dimensional images. This invention further relates to a device capable of receiving and displaying two-dimensional and three-dimensional images. As described in column 53 (line 56) to column 54 (line 22), and in figures 19 and 20, this LCD projection system can be set up to display an image for stereoscopic viewing with specially-constructed eyeglasses.

**NOVELTY :**

Independent claims 1 and 31 define a polarized display, comprising an intensity-modulating matrix display, which has a front surface, a polarizing matrix display panel, also with a front surface, placed in front of the intensity-modulating unit, wherein the display is either a linear or an elliptical polarization display. Every pixel in the linear polarization display is controllable, and the rotation of the generated polarized light is varied over a range of less than or equal to 90°. Every pixel in the elliptical polarization display is controllable, and the phase between the fast and slow axes of the polarized light, coming from corresponding pixels of the intensity-modulating matrix display, are varied over a range of less than or equal to 180°.

Continued in the Supplemental Box ...

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000065

**Box No. VII** Certain defects in the international application

The following defects in the form or contents of the international application have been noted :

On page 3 of the DESCRIPTION, there is a blacked out area in the middle of the page, following the text of paragraph [0006] ...

*"The orthogonal polarized filters of the passive glasses recreate the left and the right image for the left and the right eyes, since these polarized filters act as cosine and sine trigonometric functions as follows:"*

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.  
PCT/CA2005/000065

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made :

PCT Article 5

The following pages do not meet the requirements of PCT Article 5. There are the following typographical errors in the DESCRIPTION.

- |     |                      |  |   |
|-----|----------------------|--|---|
| (1) | (pg 1, line 17)      | "left eye" should be "right eye"                       | ✓ |
| (2) | (pg 5, para 22)      | "fine line)" should be "(fine line)"                   | ✓ |
| (3) | (pg 6, paras 30, 31) | "a lens arrays" should be "a lens array"               | ✓ |
| (4) | (pg 8, line 6)       | "passing throught the" should be "passing through the" | ✓ |

PCT Article 6

The following CLAIMS do not meet the requirements of PCT Article 6. These claims are indefinite.

In claim 1 (line 10) and claim 31 (line 9), the word "and" connecting the clauses defining the linear polarization array and the elliptical polarization array must be replaced by the word "or". In each of these claims, these clauses are preceded by the expression "wherein the display is one of" (emphasis added), which is construed to mean that one or the other of the following clause may apply, but not both. The uses of "and" between these clauses then implies that both clauses would be applicable. ✓

In addition, in claim 29 (line 5), the expression "is able to the private image" is missing a word or two. Perhaps the expression should read ..

"is able to visualize the private image". ✓



**Supplemental Box**

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: **Box No. V**

**NOVELTY :**

Claims 1-2, 10, 14, 17, 25 and 31 do not meet the requirements of PCT Article 33(2). The closest document in the art, D1, contains all of the elements of these claims. D1 describes an LCD matrix display, where the intensity of each of the pixels on the display is capable of being individually modulated using layers of polarized film. Incident light from the light source is polarized so that only light of a certain polarization is able to be transmitted to the LCD panel, and only light directed at pixels which have been selected by the control signal (ie.. representing the pixels activated in the currently displayed image) is able to be transmitted through a second polarizing film layer. Polarized light is rotated 90° by the polarized layers. The light is grated on the front surface (next to the light source) by a polarizing film which only lets through polarized light, and the modulating and polarizing matrix panels are integrated into one LCD matrix display panel.

**INVENTIVE STEP :**

Claims 1-2, 10, 14, 17, 25 and 31 are not novel, so they lack an inventive step over the cited prior art. In addition, claims 3-5, 15-16 and 27-28 do meet the requirements of PCT Article 33(3), as they lack an inventive step. The contents of claims 3 and 4 are disclosed by D2, which employs a set of retarders in linear and elliptical polarization means to control the transmission of light in LCD panels. The contents of claim 5 are disclosed by D3, which describes an LCD projection scheme to generate three dimensional images which can be viewed with passive 3D glasses.

Claim 15 is directed to adding a color filter layer to the LCD panel layers. This is well known in the field of color displays. Claim 16 merely specifies the thickness of three of the layers, without defining an advantage over the prior art.

Claims 27 and 28 define the polarizing layer as a filter sheet or a second LCD panel, which can be used to produce an enhanced 2D screen. Use of a filter sheet to enhance the display is demonstrated in D1, which transmits only polarized light from the light source to the LCD panel, to achieve a sharper display. The use of another LCD panel for this purpose can be readily extrapolated by a skilled technician.

**INDUSTRIAL APPLICABILITY :**

Claims 1-31 meet the requirements of PCT Article 33(4), as these claims are industrially applicable.